

START2

Superfund Technical Assessment and Response 1 cam 2 - Region VIII



United States Environmental Protection Agency

Contract No. 68-W-00-118

PRELIMINARY ASSESSMENT TRIP REPORT

DEFENSE TECHNOLOGY (DEF-TECH) TEAR GAS Casper, Natrona County, Wyoming

TDD No. 0105-0008

MAY 30, 2003



In association with: Tetra Tech EM, Inc.
URS Corporation
LT Environmental, Inc.
TN & Associates, Inc.

TechLaw, Inc.

Def-Tech Tear Gas - PA Trip Report Signature Page Revision: 1 Date: 05/2003 Page i of iii

PRELIMINARY ASSESSMENT TRIP REPORT

DEFENSE TECHNOLOGY (DEF-TECH) TEAR GAS Casper, Natrona County, Wyoming

EPA Contract No. 68-W-00-118 TDD No. 0305-0010

Prepared By:
Paul Schnitz
Environmental Engineer

URS Operating Services, Inc. 1099 18th Street, Suite 710 Denver, CO 80202-1908

Approved:	Joyce Ackerman, On-Scene Coordinator, EPA, Region VIII	Date: 6-3-03
Approved:	T. F. Staible, START2 Program Manager, UOS	Date: 30 May 03
Approved:	Randy Perlis, START2 Project Manager, UOS	Date: 5/30/03
Approved:	Paul Schritz, Environmental Engineer, UOS	Date: 5/10/03

This document has been prepared for the U.S. Environmental Protection Agency under Contract No. 68-W-00-118. The material contained herein is not to be disclosed to, discussed with, or made available to any person or persons for any reason without prior express approval of a responsible officer of the U.S. Environmental Protection Agency. In the interest of conserving natural resources, this document is printed on recycled paper and double-sided as appropriate.

Def-Tech Tear Gas - PA Trip Report
Distribution List
Revision: 1
Date: 05/2003
Page ii of iii

DISTRIBUTION LIST

U.S. ENVIRONMENTAL PROTECTION AGENCY

Joyce Ackerman(5 copies)

On-Scene Coordinator (OSC), EPA Region VIII

URS OPERATING SERVICES, INC.

Randy Perlis

Project Manager, Region VIII START2

Paul Schnitz

Environmental Engineer, Region VIII START2

File (2 copies) START2, EPA Region VIII

Def-Tech Tear Gas - PA Trip Report
Table of Contents
Revision: 1
Date: 05/2003
Page iii of iii

PRELIMINARY ASSESSMENT TRIP REPORT

DEFENSE TECHNOLOGY (DEF-TECH) TEAR GAS Casper, Natrona County, Wyoming

TABLE OF CONTENTS

		PAGE #
SIG	NATURE PAGE	i
DIS	TRIBUTION LIST	ii
TAE	BLE OF CONTENTS	iii
1.0	INTRODUCTION	1
2.0	BACKGROUND	1
3.0	SITE ACTIVITIES	2
4.0	SAMPLING AND ANALYSIS	4
5.0	SUMMARY OF ANALYTICAL RESULTS	5
6.0	LIST OF REFERENCES	7

FIGURES

Figure 1	Site Location Map
Figure 2	Sample Location Map

TABLES

Sample Locations and Rationale
Soil Sample Results
Air Sample Results
Wipe Sample Results
Groundwater Sample Results

APPENDICES

Appendix A Analytical Results

Def-Tech Tear Gas - PA Trip Report Revision: 1

> Date: 05/2003 Page 1 of 16

1.0 <u>INTRODUCTION</u>

URS Operating Services, Inc. (UOS), was tasked by the Environmental Protection Agency (EPA), under the

Superfund Technical Assessment and Response Team 2 (START2) contract # 68-W-00-118, Technical

Direction Document (TDD) No. 0305-0010, to provide technical support to the Region VIII On-Scene

Coordinator (OSC) in conjunction with a Preliminary Assessment (PA) involving the possible release of

chemicals from the Defense Technology (Def-Tech) facility onto adjoining residential property. Specifically,

START2 was tasked to collect samples of groundwater, indoor dust, soil, and air from the properties of

residents located near the Def-Tech facility. Field activities, including collection and handling of all

samples, followed the applicable UOS Technical Standard Operating Procedures (TSOPs) and the Generic

Quality Assurance Project Plan (URS Operating Services, Inc. (UOS) 2000; UOS 2001a).

The Def-Tech facility is located at 9125 Neosho Road, just south of the intersection of Ormsby Road and

Neosho Road, approximately seven miles north of Casper, Wyoming. (Figure 1). Def-Tech produces CS

tear gas from the precursor compounds 2-chlorobenzaldehyde and malononitrile.

Site activities related to this response were conducted on June 1, July 30, and August 12 through 16, 2001,

and included the collection of four groundwater samples plus one field Quality Assurance/Quality Control

(QA/QC) groundwater sample, seven indoor wipe samples plus one field QA/QC wipe sample (in addition

to the laboratory matrix spike/matrix spike duplicate (MS/MSD), nineteen soil samples, and twenty-four air

samples plus two field air QA/QC samples (Table 1).

This trip report is intended to be used in conjunction with the Sampling and Analysis Plan for Air and the

Soil Sampling and Analysis Plan for the Def-Tech Tear Gas Site (UOS 2001b; UOS 2001c).

2.0 BACKGROUND

The purpose of this PA was to gather data pertinent to the evaluation of the Def-Tech site with regard to

complaints by nearby residents who believed they might have been adversely affected by contaminants from

the site. Off-site consequences alleged by the complainants included physical symptoms of headaches,

rashes, edema, and insomnia.

TDD No. 0305-0010

P:\Start2\Def-Tech Tear Gas Rev 1\Post-Final Report\Text.wpd

Def-Tech Tear Gas - PA Trip Report

Revision: 1 Date: 05/2003

Page 2 of 16

The Def-Tech site is located north of Casper, Wyoming, and approximately one mile west of Interstate

Highway 25, and south of the intersection of Ormsby Road and Neosho Road in Natrona County (Figure 1).

The address of the facility is 9125 Neosho Road. The approximate site coordinates are 42° 58' 48" North

latitude and 106° 21' 0" West longitude (U.S. Geological Survey (USGS) 1971). The site can be reached

by proceeding north from Casper, Wyoming, on Interstate Highway 25 approximately ten miles to the

Ormsby Road exit, then left on Ormsby Road approximately one mile to Neosho Road, then left on Neosho

Road a distance of approximately one-quarter mile.

Surrounding land use consists of residential property, some cattle ranching, and horse breeding and boarding.

The Def-Tech site is a group of four buildings on approximately 40 acres of land. The age of the facility is

unknown, but it has been in operation as Def-Tech since at least 1994 (UOS 2001b).

3.0 <u>SITE ACTIVITIES</u>

On June 1, 2001, UOS START2 member Kent Alexander and the EPA OSC Joyce Ackerman met with Chris

Hanify of the Wyoming Department of Environmental Quality (WDEQ) Air Quality Division to discuss the

site. After obtaining vials of hexane needed to collect wipe samples, they departed for complainant's

residences, where they collected soil, groundwater, and indoor wipe samples (Figure 2).

At the residence, located at they collected a sample of tap water (DT-GW-01) and two

wipe samples (DT-WP-01 and DT-WP- 02) from inside the house, and two soil samples (DT-SO-01 and

DT-SO-02) from the yard. An artesian well water sample (DT-GW-02) was then collected from one of the

rental properties nearby. After leaving the properties, they proceeded to a rental property

(DT-WP-03) and two soil samples (DT-SO-03 and DT-SO-04), then they proceeded to

, where they collected an indoor wipe sample

residence (21 vi os) and two son samples (21 vi os), then they proceeded to

where they collected a tap water sample (DT-GW-03), an indoor wipe sample (DT-WP-04),

and two soil samples (DT-SO-05 and DT-SO-06). At the home at h

indoor wipe samples (D1 W1 05 and D1 W1 00) and two son samples (D1 50 07 and D1 50 07). No tap

water sample was taken at the residence because the residents do not drink their tap water. Finally

the representatives of START2, EPA, and WDEQ went to the residence at least the residence at least the residence at least the representatives of START2, EPA, and WDEQ went to the least the residence at leas

residence, they collected a well water sample (DT-GW-04), an indoor wipe sample (DT-WP-07), and

a soil sample (DT-SO-08). The samples were preserved as needed, bagged, and placed in a cooler with ice

TDD No. 0305-0010

, which is owned by

Def-Tech Tear Gas - PA Trip Report Revision: 1 Date: 05/2003

Page 3 of 16

until Mr. Alexander returned with the samples to the START2 Operations Center (OC) in Denver, Colorado, where the samples were refrigerated until shipment to the Quick Silver Analytics, Inc. laboratory the following morning.

On July 30, 2001, UOS START2 member Paul Schnitz met Ruth Heald of the Casper/Natrona County Health Department near the intersection of Interstate 25 and Ormsby Road and proceeded from there to the site to collect additional soil samples from the properties. Both entry gates were locked when they arrived. Mr. Schnitz called Ms. Ackerman to confirm that site access had been obtained. Upon verification that Mr. had already signed a site access agreement, Mr. Schnitz began preparations to commence sampling. At that time, Ms. Heald asked whether her continued presence was necessary and left the site when she was told it was not.

Field activities conducted by START2 on July 30 included site reconnaissance and the collection of soil samples on Mr. property. Eight four-point composite soil samples (DT-TS-00M1 through DT-TS-00M8) were collected from locations depicted on Figure 2. Because of the nature of the suspected contaminants, soil was collected from the uppermost two inches of topsoil. Sample collection began at 1250 hours. A strong, steady breeze, estimated at 15 to 18 miles per hour (mph), was blowing from the south, the ambient temperature was hot, and the sky was clear throughout the duration of field activities. The topsoil was very dry. No identifiable odors from the Def-Tech facility were noticed.

arrived at 1307 hours. unlocked the northern gate to allow START2 vehicular access onto his property. Field activities were completed at 1532 hours, and START2 departed the site.

On August 12 through 16, 2001, UOS START2 members Paul Schnitz and Henry Schmelzer collected air samples (DT-AR-001 through DT-AR-26) using personal air samplers, in accordance with the Def-Tech Site Sampling and Analysis Plan for Air. Sample media were packed Tenax tubes and glass filters. Six locations for collecting air samples were established, north, west, southeast, and south-southwest of the Def-Tech facility as shown on Figure 2. The sampling pumps were calibrated each morning prior to sampling and each evening at the conclusion of that day's sampling run to determine an average flow rate and volume sampled during each sampling run. Sampling commenced each day at approximately 0630 to 0730 hours and concluded each evening between 1900 and 2000 hours. Fresh filter media were used each day. At the end of each sampling day, the filter media were collected, labeled, and preserved for shipment to the laboratory the following day, as described in Section 4.0.

Def-Tech Tear Gas - PA Trip Report Revision: 1

Date: 05/2003

Page 4 of 16

Soil samples DT-TS-009 and DT-TS-010 were collected on August 15, 2001, from rental properties owned

Analytical results related to this effort are summarized in Section 5.0 and in Tables 2, 3, 4, and 5 of this

report, and laboratory data sheets are in Appendix A.

4.0 SAMPLING AND ANALYSIS

Sample locations are described on Table 1. Three of the water samples were collected by filling certified

clean one-liter amber glass bottles from faucets. The fourth water sample (DT-GW-04) was filled with water

bailed from a well. Soil samples were collected into eight-ounce glass jars using disposable plastic scoops.

Wipe samples were collected by wiping a 12-centimeter (cm) by 12-cm area with a sterile gauze pad

moistened with hexane. Air samples were collected on glass filters and in packed Tenax tubes.

The soil and wipe samples collected on June 1 were shipped via Federal Express to Quicksilver Analytical

at the Edgewood Chemical and Biological Forensic Analytical Center in Aberdeen, Maryland 21010-5424

for volatile organic compounds (VOCs) analysis. Split wipe samples were shipped via Federal Express to

Paragon Analytics, Inc. at 225 Commerce Drive, Fort Collins, Colorado 80524 for gross alpha and gross beta

analysis

Water samples were shipped via Federal Express to Paragon Analytics, Inc. at the above address, for metals,

VOCs, and radiochemistry analyses. Split water samples were sent via Federal Express to BC Laboratories,

4100 Atlas Court, Bakersfield, California, for semivolatile organic compounds (SVOCs), organochlorine

pesticide, and polychlorinated biphenyls (PCBs) analysis.

Soil samples collected on July 30 were shipped via Federal Express to GEOMET Technologies, Inc. at 8577

Atlas Drive, Gaithersburg, Maryland. Those samples were analyzed for CS tear gas and its precursor

compounds, 2-chlorobenzaldehyde and malononitrile under a subcontract by Quicksilver Analytics, Inc.,

1309 Continental Drive, Suite N, Abingdon, Maryland 21009-2335.

Air and soil samples collected August 13, 14, 15, and 16 were shipped via Federal Express to Quicksilver

Analytics at Aberdeen, Maryland. Soil samples were analyzed for CS tear gas, 2-chlorobenzaldehyde and

TDD No. 0305-0010

Def-Tech Tear Gas - PA Trip Report

Revision: 1 Date: 05/2003

Jate: 05/2005

Page 5 of 16

malononitrile. The air samples were analyzed for CS tear gas, 2-chlorobenzaldehyde, and malononitrile

using Method AM-087.

Soil samples associated with this site were screened by gas chromatography and mass spectrometry

(GC/MS), with additional analysis determined based on the results of the GC/MS screening.

Water samples were analyzed for metals and mercury using EPA Methods 200.7 and 245.7, VOCs using EPA

Method 524.2, organochlorine pesticides and PCBs using EPA Method 508, and SVOCs using EPA Method

525.5.

Wipe samples were analyzed for gross Alpha and gross Beta radiation by gas proportional counting.

In addition to the environmental samples taken by START2, blood and urine samples were taken from some

of the complainants, under the direction of the Natrona County Health Department, and analyzed by

WorkCare. Results of those samples are confidential, but the individuals whose blood and urine were

sampled may obtain results from the Natrona County Health Department.

5.0 SUMMARY OF ANALYTICAL RESULTS

Analytical results of the reviewed data are summarized in Tables 2 through 5.

Soil samples DT-TS-00M1, DT-TS-00M2, DT-TS-00M3, DT-TS-00M4, DT-TS-00M5, DT-TS-00M6,

DT-TS-00M7, and DT-TS-00M8, which were all collected on the property on July 30, 2001, contained

low (0.04 to 3.0 parts per billion (ppb)) concentrations of 2-chlorobenzaldehyde, which does not occur

naturally (Table 2). The contaminants are believed to have originated from the Def-Tech facility. The

remaining soil samples each contained 20 tentatively identified compounds (TICs), none of which appear

to be associated with the Def-Tech facility.

Groundwater samples contained low concentrations of VOCs, SVOCs, and metal contaminants. None of

the analytes exceeded acceptable Maximum Contaminant Levels (MCLs) for drinking water; however,

several of the samples contained high levels of sodium. Methylene chloride was detected in DT-GW-01,

DT-GW-02 and DT-GW-03 near concentrations of 0.4 micrograms per liter (µg/L). Methylene chloride was

also detected in the trip blank DT-GW-10 at 0.46 μ g/L (Table 5).

TDD No. 0305-0010

P:\Start2\Def-Tech Tear Gas Rev 1\Post-Final Report\Text.wpd

Def-Tech Tear Gas - PA Trip Report

Revision: 1

Date: 05/2003

Page 6 of 16

The contaminant 2-chlorobenzaldehyde was detected in one air sample (DT-AR-016T) at an unquantifiable

concentration greater than the method detection limit (MDL) of 0.00011 milligrams per cubic meter (mg/m³)

but less than the instrument calibration limit of 0.00018 mg/m³ (Table 3)

No contaminants related to the Def-Tech facility were detected in any of the wipe samples (Table 4

No measurable radiation above background levels was detected in any of the water or wipe samples (Tables

4 and 5

Def-Tech Tear Gas - PA Trip Report Revision: 1

> Date: 05/2003 Page 7 of 16

6.0 <u>LIST OF REFERENCES</u>

U.S. Geological Survey (USGS). 1971. The Reefs Quadrangle, Wyoming - Natrono County. 7.5 Minute Series Topographic). 1961, photorevised 1971.

URS Operating Services, Inc. (UOS). 2000. "Technical Standard Operating 'Procedures for the Superfund Technical Assessment and Response Team (START) EPA Region VIII." September 2000.

URS Operating Services, Inc. (UOS). 2001a. "Generic Quality Assurance Project Plan" for the Superfund Technical Assessment and Response Team, Region VIII. February 28, 2001.

URS Operating Services, Inc. (UOS). 2001b. Sampling and Analysis Plan for Air for the Defense Technology (Def-Tech) Tear Gas Site, Casper, Wyoming. August 2001.

URS Operating Services, Inc. (UOS). 2001c. Soil Sampling and Analysis Plan for the Defense Technology (Def-Tech) Tear Gas Site, Casper, Wyoming. October 9, 2001.

Def-Tech Tear Gas - PA Trip Report Revision: 1 Date: 05/2003 Page 8 of 16

TABLE 1Sample Locations and Rationale

Matrix	Sample #	Location	Rationale
Groundwater	DT-GW-01	Collected from the residential water well.	Determine whether contaminants from the site have affected nearby groundwater wells, some of which are drinking water sources. (The contaminants in question do not occur naturally, so no background sample was taken.)
	DT-GW-02	Collected from the rental property residential water well.	Determine whether contaminants from the site have affected nearby groundwater wells.
	DT-GW-03	Collected from the residential water well.	Determine whether contaminants from the site have affected nearby groundwater wells.
	DT-GW-04	Collected from the residential water well. (Not used for drinking water.)	Determine whether contaminants from the site have affected nearby groundwater wells.
Wipe	DT-WP-01 and DT-WP-02	Collected from inside residence.	Determine whether contaminants from the site are present inside nearby resident's homes.
	DT-WP-03	Collected from inside the rental residence.	Determine whether contaminants from the site are present inside nearby resident's homes.
	DT-WP-04	Collected from inside the residence.	Determine whether contaminants from the site are present inside nearby resident's homes.
	DT-WP-05 and DT-WP-06	Collected from inside the residence.	Determine whether contaminants from the site are present inside nearby resident's homes.
	DT-WP-07	Collected from inside the residence.	Determine whether contaminants from the site are present inside nearby resident's homes.
Soil	DT-SO-01 and DT-SO-O2	Collected from the residence.	Determine whether contaminants from the facility are present in nearby residential soils. (The contaminants in question do not occur naturally, so no background samples were taken.)

TABLE 1 Sample Locations and Rationale (continued)

Matrix	Sample #	Location	Rationale
Soil (continued)	DT-SO-03, DT-SO-04, DT-SO-05, DT-SO-06, and DT-TS-00M1 through DT-TS-00M8	Collected from the residence.	Determine whether contaminants from the facility are present in nearby residential soils.
	DT-SO-07 and DT-SO-09	Collected from the residence.	Determine whether contaminants from the facility are present in nearby residential soils.
	DT-SO-08	Collected from the residence.	Determine whether contaminants from the facility are present in nearby residential soils.
:	DT-TS-009	Collected from the south rental trailer property.	Determine whether contaminants from the facility are present in nearby residential soils.
	DT-TS-0010	Collected from the north rental trailer property.	Determine whether contaminants from the facility are present in nearby residential soils.
Air	DT-AR-003 DT-AR-012 DT-AR-013 DT-AR-020	residence	Determine whether airborne contaminants are present on the property.
	DT-AR-001, DT-AR-002, DT-AR-008, DT-AR-009 DT-AR-016 DT-AR-017 DT-AR-023 DT-AR-024	residence	Determine whether airborne contaminants are present on the property (The MS/MSD was collected to test the precision of laboratory analytical methods.)
	DT-AR-006 DT-AR-010 DT-AR-018 DT-AR-025	residence	Determine whether airborne contaminants are present on the property
	DT-AR-004 DT-AR-007 DT-AR-014 DT-AR-021	residence	Determine whether airborne contaminants are present on the property

Page 10 of 16

TABLE 1 Sample Locations and Rationale (continued)

Matrix	Sample #	Location	Rationale
Air (continued)	DT-AR-005 DT-AR-011 DT-AR-015 DT-AR-022	residence	Determine whether airborne contaminants are present on the property
QA/QC	DT-WP-08	Field blank (MS/MSD)	Quality Assurance samples to document the precision of sample collection procedures.
	DT-AR-019	Trip blank	Document potential for contamination via transport
	DT-AR-026	Trip blank	Document potential for contamination via transport
	DT-GW10	Trip blank	Document potential for contamination via transport

Page 11 of 16

TABLE 2
Soil Sample Results
(Concentrations in nanograms per gram (ng/g) (parts per billion (ppb))

Sample	CS Tear Gas	Malonitrile	2-chlorobenzaldehyde
DT-SO-01	ND - R	ND - R	ND - R
DT-SO-02	ND - R	ND - R	ND - R
DT-SO-03	4.0 - R*	ND - R	5.0 - R*
DT-SO-04	2.0 - R*	ND - R	7.0 - R*
DT-SO-05	ND - R	ND - R	ND - R
DT-SO-06	ND - R	ND - R	ND - R
DT-SO-07	ND - R	ND - R	ND - R
DT-SO-08	ND - R	ND - R	ND - R
DT-SO-09	ND - R	ND - R	ND - R
DT-TS-00M1	0.0724 U	1.764 U	3.0
DT-TS-00M2	0.0724 Ù	1.764 U	3.0
DT-TS-00M3	0.0724 U	1.764 U	1.4
DT-TS-00M4	0.0724 U	1.764 U	0.1
DT-TS-00M5	0.0724 U	1.764 U	0.04
DT-TS-00M6	0.0724 U	1.764 U	0.70
DT-TS-00M7	0.0724 U	1.764 U	0.30
DT-TS-00M8	0.0724 U	1.764 U	0.10
DT-TS-009	0.0724 U	1.764 UJ	0.040 UJ
DT-TS-010	0.0724 U	1.764 UJ	0.040 UJ

ND - R Not detected in the first screening. Results of the second test were rejected because holding times had been grossly exceeded.

UJ Not detected. Reported detection limit is estimated.

U Not detected.

^{*} CS tear gas and 2-chlorobenzaldehyde were detected in preliminary tests that could not be validated. When the samples were submitted for confirmatory testing, holding times had been exceeded.

Page 12 of 16

TABLE 3
Air Sample Results
(Concentrations in milligrams per cubic meter (mg/m³))

Sample	CS Tear Gas	Malonitrile	2-chlorobenzaldehyde
DT-AR-001	0.0037 U	0.00005 U	0.00012 U
DT-AR-002	0.0037 U	0.00094 U	0.00028 U
DT-AR-003	0.0037 U	0.00004 U	0.00012 U
DT-AR-004	0.0037 U	0.00008 U	0.00024 U
DT-AR-005	0.0037 U	0.00004 U	0.00011 U
DT-AR-006	0.0037 U	0.00007 U	0.00022 U
DT-AR-007	0.0037 U	0.00005 U	0.00016 U
DT-AR-008	0.0037 U	0.00003 U	0.00008 U
DT-AR-009	0.0037 U	0.00008 U	0.00023 U
DT-AR-010	0.0037 U	0.00003 U	0.00010 U
DT-AR-011	0.0037 U	0.00005 U	0.00015 U
DT-AR-012	0.0037 U	0.00008 U	0.00024 U
DT-AR-013	0.0037 U	0.00004 U	0.00013 U
DT-AR-014	0.0037 U	0.00004 U	0.00011 U
DT-AR-015	0.0037 U	0.00003 U	0.00009 U
DT-AR-016	0.0037 U	0.00004 U	>0.00011 but <0.00018 *
DT-AR-017	0.0037 U	0.00003 U	0.00009 U
DT-AR-018	0.0037 U	0.00004 U	0.00012 U
DT-AR-019	0.0037 U	0.00005 U	0.00014 U
DT-AR-020	0.0037 U	0.0-0003 U	0.00009 U
DT-AR-021	0.0037 U	R	R
DT-AR-022	0.0037 U	0.00004 U	0.00011 U
DT-AR-023	0.0037 U	0.00003 U	0.00010 U
DT-AR-024	0.0037 U	0.00003 U	0.00010 U
DT-AR-025	0.0037 U	0.00004 U	0.00011 U
DT-AR-026	0.0037 U	0.00003 U	0.00003 U

ND Not detected at the method detection limit (MDL).

R Rejected value. Sample media arrived at the laboratory damaged

^{*} Detected at a concentration above the MDL (0.00011 mg/m³) but less than the calibration limit (0.00018 mg/m³).

Def-Tech Tear Gas - PA Trip Report Revision: 1

Date: 05/2003 Page 13 of 16

TABLE 4 Wipe Sample Results

Sample	α / β Radiation pCi/s	CS Tear Gas ng/inch²	Malonitrile ng/inch²	2-chlorobenzaldehyde ng/inch²
DT-WP-01	1.4 / 1.6	0.09 UJ	NA	0.051 UJ
DT-WP-02	1.3 / 1.5	0.09 UJ	NA	0.051 UJ
DT-WP-03	1.1 / 1.5	0.09 UJ	NA	0.051 UJ
DT-WP-04	1.1 / 1.4	0.09 UJ	NA	0.051 UJ
DT-WP-05	1.1 / 1.3	0.09 UJ	NA	0.051 UJ
DT-WP-06	NA	0.09 UJ	NA	0.051 UJ
DT-WP-07	1.2 / 1.4	0.09 UJ	NA	0.051 UJ
DT-WP-08	1.1 / 1.4	0.09 UJ	NA	0.051 UJ

UJ The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.

ND Not detected. NA Not analyzed.

pCi/s Pico Curies per second.

Page 14 of 16

TABLE 5 Groundwater Sample Results (µg/L)

Sample	VOC	svoc	Pesticide/ PCB	TAL Metals	Gross Alpha α pCi/L	Gross Beta β pCi/L
DT-GW-01	methylene chloride: 0.47 J*	ND	ND	Ca: 6,660 Mg: 2,540 Mn: 12.8 Na: 495,000 Zn: 46.3	6.4 U	7.0 U
DT-GW-02	methylene chloride: 0.40 J *	ND	ND	Ca: 4,240 Mg: 1,150 Na: 417,000	5.6 U	5.6 U
DT-GW-03	chloromethane: 0.19 J methylene chloride: 0.42 J*	ND	ND	Ca: 346,000 Cu: 41.2 Fe: 3,140 K: 13,100 Mg: 118,000 Mn: 322 Na: 1,570,000 Zn: 32.3	25 U	30 U
DT-GW-04	benzene: 2.2 ethylbenzene: 0.76 J toluene: 2.0 1,2,4 trimethylbenzene: 0.11 J — and p- xylene: 0.76 J o-xylene: 0.38 J	di-n-butyl phthalate: 2.3 J	ND .	Pb: 10.6 Al: 112 Ca: 1,220 Cu: 17.4 Fe: 4,450 Mn: 253 Na: 530,000 Zn: 27.3	6.1 U	7.3 U
DT-GW-10 (Trip blank)	methylene chloride: 0.46 J*	NA	NA	NA	NA	NA

ND No compounds were detected at or above the laboratory reporting limit.

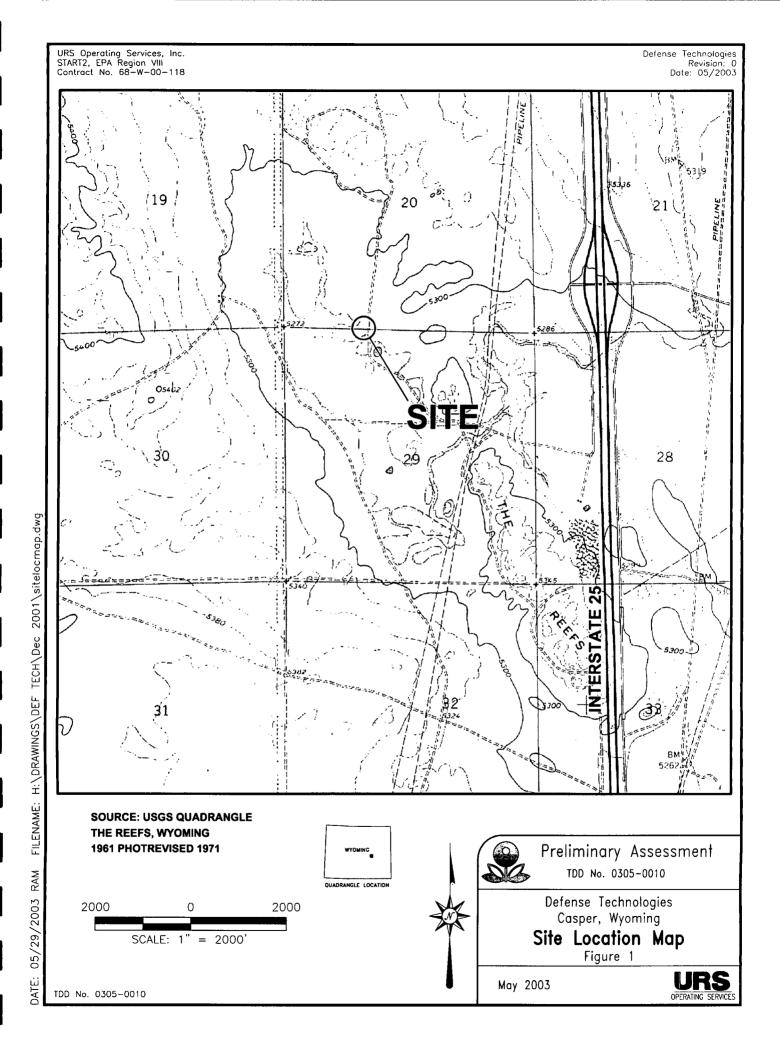
U The analyte was not detected above the Contract Required Quantitation Limit (CRQL).

μg/L micrograms per liter
pCi/L pico Curies per liter
J Estimated value
NA Not analyzed

Detected at comparable concentration in the trip blank

MCLs (Maximum Contaminant Levels) for organic compounds allowed by EPA and the State of Wyoming, are, in $\mu g/L$: chloromethane NA; benzene 5; ethylbenzene 700; toluene 1,000; 1,2,4 trimethylbenzene N/A; xylenes (total) 10,000.

Note: Only the compounds that were detected above the laboratory reporting limits are listed in the table.



TARGET SHEET

EPA REGION VIII SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOCUMENT NUMBER: 1001638

SITE NAME:CASPER TEAR GAS
DOCUMENT DATE: 05/30/2003
DOCUMENT NOT SCANNED Due to one of the following reasons:
□ PHOTOGRAPHS
☐ 3-DIMENSIONAL
□ OVERSIZED
□ AUDIO/VISUAL
☐ PERMANENTLY BOUND DOCUMENTS
□ POOR LEGIBILITY
□ OTHER
□ NOT AVAILABLE
☑ TYPES OF DOCUMENTS NOT TO BE SCANNED (Data Packages, Data Validation, Sampling Data, CBI, Chain of Custody)
DOCUMENT DESCRIPTION:
APPENDIX A Analytical Results Air Sample Results